IN THE CLAIMS:

The claims have been amended as follows:

1. (Currently Amended) A distributed call signaling message routing gateway comprising:

(a) a first distributed gateway routing element including a first interface for sending SS7 call signaling messages to and receiving SS7 call signaling messages from a first SS7 network element via a first SS7 signaling link and for performing SS7 routing functions for the SS7 messages received from the first SS7 network element and a second interface for sending the SS7-routed messages over a virtual bus and for setting quality of service parameters in the SS7-routed messages sent over the virtual bus, wherein the SS7 call signaling messages sent over the second interface include a plurality of different signaling message types and wherein setting quality of service parameters includes determining a required quality of service parameter for each SS7 call signaling message sent over the second interface based on the signaling message type of each SS7 call signaling message; and

(b) at least one second distributed gateway routing element including a first interface for receiving the SS7-routed messages from the first distributed gateway routing element and a second interface for SS7-routing the received messages to a second SS7 network element via a second SS7 signaling link, wherein the first and second distributed gateway routing elements are adapted to be located at geographically diverse locations

and to share an SS7 point code and thereby function as a geographically distributed STP associated with different SS7 signaling points.

2. (Original) The distributed gateway of claim 1 wherein the first interfaces of the first and second distributed gateway routing elements include SS7 MTP layer 3 routing functions for routing SS7 messages based on SS7 point codes.

3. (Original) The distributed gateway of claim 1 wherein the first interfaces of the first and second distributed gateway routing elements are adapted to route messages based on circuit identification codes.

4. (Original) The distributed gateway of claim 1 wherein the first interfaces are adapted to screen the SS7 call signaling messages based on one or more SS7 message parameters.

5. (Original) The distributed gateway of claim 1 wherein the first interfaces of the distributed gateway routing elements are adapted to copy the SS7 call signaling messages and forward the copies to a predetermined network monitoring or accounting node.

6. (Original) The distributed gateway of claim 1 wherein the distributed gateway routing elements each include a triggerless number portability process for identifying call signaling messages relating to calls to ported numbers and for overriding the SS7 routing functions for the call signaling messages related to calls directed to ported numbers.

7. (Currently Amended) The distributed gateway ~~routing element~~ of claim 1 wherein the second interfaces of the first and second distributed gateway routing

elements include protocol translation processes for translating the protocol of the SS7-routed messages to and from the protocol of the virtual bus.

8. (Original) The distributed gateway of claim 1 wherein the second interfaces of the first and second distributed gateway routing elements include quality of service manager processes for setting the quality of service parameters in the SS7-routed messages to be transmitted over the virtual bus.

9. (Original) The distributed gateway of claim 1 wherein the first and second distributed gateway routing elements are co-located with the first and second SS7 network elements.

10. (Previously Presented) The distributed gateway of claim 9 wherein the first and second distributed gateway routing elements are co-located with first and second geographically diverse service switching points (SSPs).

11. (Previously Presented) The distributed gateway of claim 9 wherein the first and second distributed gateway routing elements are co-located with first and second geographically diverse service control points (SCPs).

12. (Previously Presented) The distributed gateway of claim 9 wherein the first distributed gateway routing element is co-located with a service switching point and the second distributed gateway routing element is co-located with a service control point (SCP) located remotely from the service switching points.

13. (Original) The distributed gateway of claim 9 wherein at least one of the first and second distributed gateway routing elements is co-located with a signal transfer point (STP).

14. (Previously Presented) The distributed gateway of claim 9 wherein at least one of the first and second distributed gateway routing elements are co-located with a soft switch.

15. (Original) The distributed gateway of claim 9 wherein at least one of the distributed gateway routing elements is co-located with an application server.

16. (Original) The distributed gateway of claim 1 wherein at least one of the first and second distributed gateway routing elements are co-located with more than one SS7 network element.

17. (Original) The distributed gateway of claim 1 comprising a translation services module coupled to the first and second distributed gateway routing elements via the virtual bus for translating SS7-routed messages.

18. (Original) The distributed gateway of claim 17 wherein the translation services module is adapted to perform global title translation services for the SS7-routed messages.

19. (Original) The distributed gateway of claim 17 wherein the translation services module is adapted to perform directory number to Internet protocol address mapping for the SS7-routed messages.

20. (Original) The distributed gateway of claim 17 wherein the translation services module is adapted to perform number portability translation services for the SS7-routed messages.

21. (Currently Amended) The distributed gateway ~~routing element~~ of claim 17 wherein the distributed gateway routing elements and the translation services

module share a single SS7 point code and function collectively as a signal transfer point.

22. (Original) The distributed gateway of claim 1 wherein the first and second distributed gateway routing elements each comprise a general purpose computer.

23. (Original) The distributed gateway of claim 1 comprising an operations, administration, and maintenance element coupled to the first and second distributed gateway routing elements for provisioning and maintaining databases on the first and second distributed gateway routing elements.

24. (Original) The distributed gateway of claim 23 wherein the operations, administration, and maintenance element is coupled to the first and second distributed gateway routing elements via a simple network management protocol (SNMP) interface.

25. (Currently Amended) A distributed gateway comprising:

(a) a first distributed gateway routing element co-located with an SS7 service switching point for receiving call signaling messages from the service switching point via an SS7 signaling link, for determining quality of service parameters for the call signaling messages, for generating and adding a header to each of the call signaling messages, the header including the quality of service parameters, and for forwarding the call signaling messages over a virtual bus, wherein the [[SS7]] call signaling messages include a plurality of different <u>signaling</u> message types and wherein determining quality of service parameters for the call signaling messages

includes determining the quality of service parameters based on signaling the message types of the call signaling messages; and

(b) a second distributed gateway routing element co-located with a second service switching point for receiving the call signaling messages from the virtual bus, removing the headers, and for forwarding the call signaling messages to the second service switching point via an SS7 signaling link, wherein the second distributed gateway routing element and the second service switching point are located remotely from the first distributed gateway routing element and the first service switching point, and wherein the first and second distributed gateway routing elements share an SS7 point code and thereby function as a geographically distributed STP having routing elements located at different SS7 service switching points.

26. (Original) The distributed gateway of claim 25 comprising a third distributed gateway routing element coupled to the first and second distributed gateway routing elements via the virtual bus, the third distributed gateway routing element being co-located with an SS7 service control point for sending and receiving call signaling messages via the virtual bus with a specified quality of service.

27. (Original) The distributed gateway of claim 25 comprising a translation services module coupled to the first and second distributed gateway routing elements via the virtual bus for performing SS7 translation operations on received call signaling messages and for forwarding the translated call signaling messages to one of the first and second distributed gateway routing elements via the virtual bus.

28. (Original) The distributed gateway of claim 27 wherein the translation services module is adapted to convert the call signaling messages between American National Standards Institute (ANSI) to International Telecommunications Union (ITU) message formats.

29. (Original) The distributed gateway of claim 25 comprising an operations, administration, and maintenance module coupled to the first and second distributed gateway routing elements via the virtual bus for provisioning and maintaining databases associated with the first and second distributed gateway routing elements.

30. (Currently Amended) A method for routing SS7 messages using a distributed gateway, the method comprising:

(a) sharing an SS7 point code between first and second geographically distributed routing elements respectively co-located with first and second SS7 network elements and thereby functioning as a geographically distributed STP;

(b) receiving, at the first routing element, an SS7 call signaling message from a first SS7 network element via a first SS7 signaling link;

(c) performing SS7 routing operations on the SS7 call signaling message;

(d) determining quality of service parameters for the SS7 call signaling message, wherein SS7 call signaling messages sent or received by the first routing element include a plurality of different signaling message types and wherein determining quality of service parameters for the call signaling message includes, at the first routing element, determining

quality of service parameters based on the signaling message type of the SS7 call signaling message;

(e) adding a virtual bus header to the SS7 call signaling message and setting the quality of service parameters in the virtual bus header; and

(f) sending the call signaling message over the virtual bus to the second routing element associated with the second SS7 network element.

31. (Original) The method of claim 30 wherein setting quality of service parameters in the virtual bus header includes setting a parameter in a flow label field of an Internet protocol version 6 header.

32. (Original) The method of claim 30 wherein setting quality of service parameters in the virtual bus header includes writing a predetermined value into a type of service (TOS) field in an IP version 4 header.

33. (Original) The method of claim 30 wherein setting quality of service parameters in the virtual bus header includes adding a multiprotocol label switching (MPLS) header to the call signaling message.

34. (Previously Presented) The distributed gateway of claim 1 wherein the virtual bus comprises an MPLS label switched path and wherein the first distributed gateway routing element is adapted to add an MPLS label to each of the SS7 signaling messages to be sent over the virtual bus, the MPLS label corresponding to a forwarding equivalence class preassigned to the SS7 signaling messages.

35. (Previously Presented) The distributed gateway of claim 34 wherein the first distributed gateway routing element is adapted to encapsulate each SS7

signaling message in an IP packet and to add an MPLS header including an MPLS label to the IP packet.

36. (Previously Presented) The distributed gateway of claim 35 wherein the first distributed gateway routing element is adapted to set an experimental use field in the MPLS header of each SS7 message to a predetermined value for indicating quality of service to be given to the SS7 messages within the forwarding equivalence class.

37. (Previously Presented) The distributed gateway of claim 1 wherein the first and second distributed gateway routing elements are adapted to exchange status information regarding the first and second SS7 signaling links with each other over the virtual bus.

38. (Currently Amended) The distributed ~~signaling message routing~~ gateway of claim 25 wherein the virtual bus comprises an MPLS label switched path and wherein the first distributed gateway routing element is adapted to add an MPLS label to each of the SS7 signaling messages to be sent over the virtual bus, the MPLS label corresponding to a forwarding equivalence class preassigned to the SS7 signaling messages.

39. (Previously Presented) The distributed gateway of claim 38 wherein the first distributed gateway routing element is adapted to encapsulate each SS7 signaling message in an IP packet and to add an MPLS header including an MPLS label to the IP packet.

40. (Previously Presented) The distributed gateway of claim 39 wherein the first distributed gateway routing element is adapted to set an experimental use field in

the MPLS header of each SS7 message to a predetermined value for indicating quality of service to be given to the SS7 messages within the forwarding equivalence class.

41. (Currently Amended) The distributed ~~signaling message routing~~ gateway of claim 25 wherein the first and second distributed gateway routing elements are adapted to exchange status information regarding the first and second SS7 signaling links with each other over the virtual bus.

42. (Previously Presented) The method of claim 30 comprising exchanging signaling link status information between the first and second routing elements to update SS7 routing tables maintained by the first and second routing elements.

43. (Previously Presented) The method of claim 31 wherein setting a parameter in a flow label field of an Internet protocol version 6 header includes inserting a traffic class value in the flow label field indicating high time sensitivity.

44. (Previously Presented) The method of claim 32 wherein writing a predetermined value into a type of service field in an IP version 4 header includes setting a precedence value in a precedence field of the type of service header indicating high priority and setting a delay bit in the type of service field indicating low delay transport.

45. (Previously Presented) The method of claim 33 wherein adding an MPLS header to the call signaling message includes inserting an MPLS label in the MPLS header, the MPLS label corresponding to a forwarding equivalence class preassigned to the call signaling message.

46. (Previously Presented) The method of claim 45 comprising setting an experimental use field in the MPLS label to a predetermined value for indicating quality of service to be given to the call signaling message within the forwarding equivalence class.